

REMARKS

Applicants respectfully request reconsideration and allowance in view of the following remarks. In the Office Action, mailed March 31, 2003, the Examiner rejected claims 1-100. Following entry of these remarks, claims 1-100 will be pending in the application.

Double Patenting Rejection

In the Office Action, the Examiner provisionally rejected claims 1-100 under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-113 of co-pending U.S. Patent Application Serial No. 09/502,406 ("the '406 application"). Applicants respectfully traverse this provisional rejection.

Before noting the specifics of Applicants' traversal, the Examiner should note that a similar, complementary, double-patenting rejection was made in the '406 application. The provisional rejection in the '406 was successfully traversed by Applicants. In fact, Applicants have just received a Notice of Allowance, mailed August 25, 2003, from Examiner Andre J. Allen of Art Unit 2855 in the '406 application.

There are several important distinctions between the claimed invention of the present application and the invention as currently claimed in the '406 application. In the present invention, the voltage/current is applied in a direction orthogonal to the plane of the layers, while in the '406 application, the applied direction of the voltage/current is parallel to the plane of the layers. This difference in applied voltage/current fundamentally changes the basic principle under which each claimed invention operates. The claimed invention of the present application uses Tunneling Effects, while the claimed invention of the '406 application uses Giant Magneto-Resistance Effects.

There is also a physical or structural distinction between the claimed invention of the present application and the claimed invention of the '406 application. In the present application, the claimed invention contains a spacer layer that is insulating, while in the '406 application, the included spacer layer is conducting. This difference further facilitates the fundamental operating distinction previously discussed.

Therefore, for at least these reasons, Applicants submit that the claimed invention of the present application and the claimed invention of the '406 application are patentably distinct from one another. As such, Applicants request withdrawal of the obviousness-type double patenting rejection.

Claim Rejections under 35 U.S.C. §102

In the Office Action, the Examiner rejected claims 1, 7, 9-15, 17-19, 22-26, 31, 33-34, 37-41, 42-53, 59, 62-65, 68, 71-73 and 78-89 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,408,377 to Gurney et al. ("Gurney '377"). Applicants respectfully traverse these rejections.

An anticipation rejection is proper when a patent applicant has claimed an invention that "was patented ... in this or a foreign country ... more than one year one year prior to the date of the application for patent in the United States." 35 U.S.C. §102(b). A claim is anticipated under 35 U.S.C. §102(b) "only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988) (emphasis in original), *cert. denied*, 488 U.S. 892 (1988). "To establish inherency, the extrinsic evidence, 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations omitted). Upon reliance on a theory of inherency, "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

For at least the reasons stated below, Applicants assert that Gurney '377 fails to expressly or inherently describe each and every element of the invention claimed by Applicants and, therefore, that Applicants' rejected claims 1, 7, 9-15, 17-19, 22-26, 31, 33-34, 37-41, 42-53, 59, 62-65, 68, 71-73 and 78-89 are patentably distinct from Gurney '377.

In general, Gurney '377 nowhere discloses a device capable of sensing applied pressure. In fact, the word pressure only appears once in the Gurney '377 disclosure, and that one usage

pertains to a hole in the side of a hard-disc drive case for "equalizing pressure between the interior of the disk drive and the outside environment." Gurney '377, col. 3, ll. 38-39. Rather, Gurney '377 discloses a "magnetic recording data storage system of high recording density made possible by an improved magnetoresistive sensor." Gurney '377, Abstract. Gurney '377 teaches an improved hard-disc drive medium. By contrast, Applicants' claimed invention is of a pressure measurement sensor. Applicants contend that this distinction alone is enough to overcome the anticipation rejections. However, the following additional distinctions also support a withdrawal of the anticipation rejections.

Nowhere does Gurney '377 disclose a current-biased magnetoresistive or magnetostrictive layer. Further, Gurney '377 does not disclose a non-magnetic insulating layer; rather it discloses a non-magnetic conducting layer. Additionally, Gurney '377 does not teach an applied pressure causing magnetization vectors to change, nor does it teach sensing this change in resistance to a tunneling current. In fact nowhere in the Gurney '377 disclosure is the word "tunnel" or "tunneling" used, and, as previously mentioned, the Gurney '377 apparatus has nothing to do with pressure measurement. Finally, Gurney '377 does not have an applied voltage that is orthogonal to the plane of the layers.

Therefore, for at least these reasons, claims 1, 7, 9-15, 17-19, 22-26, 31, 33-34, 37-41, 42-53, 59, 62-65, 68, 71-73 and 78-89 are patentably distinct from Gurney '377 and thus, are all allowable over the art of record.

Claim Rejections under 35 U.S.C. §103

In the Office Action, the Examiner rejected claims 2-8, 16, 32, 55-61, 66, 67 and 90-100 under 35 U.S.C. §103(a) as allegedly being unpatentable over Gurney '377 in view of U.S. Patent No. 5,56,617 to Gurney et al. ("Gurney '617") and U.S. Patent No. 5,891,586 to Hasegawa et al. ("Hasegawa"). Further, the Examiner also rejected claims 20, 21, 69 and 70 under 35 U.S.C. §103(a) as allegedly being unpatentable over Gurney '377 in view of Gurney '617 and Hasegawa, as applied to Claims 1-19, 22-60, 62-68 and 71-100, and further in view of U.S. Patent No. 5,442,508 to Smith ("Smith"). Applicants respectfully traverse these rejections.

A §103(a), or obviousness, rejection is proper only when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which the subject matter pertains." 35 U.S.C. §103(a). The Examiner must make out a *prima facie* case for obviousness. The mere fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness. The *en banc* Federal Circuit has held that "structural similarity between claimed and prior art subject matter, proved by combining references or otherwise, where the prior art gives reason or motivation to make the claimed compositions, creates a *prima facie* case of obviousness." *In re Dillon*, 16 U.S.P.Q. 2d 1897, 1901 (CAFC 1990). The underlying inquiries into the validity of an obvious rejection are: "(1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness." *In re Dembiczak*, 175 F.3d 994, 998, (Fed. Cir. 1999).

Further, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Likewise, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

For the reasons stated below and taking into consideration the standards for obviousness presented above, Applicants assert that one of ordinary skill in the art would not have considered Applicants' invention obvious at the time of invention and, therefore, that Applicants' rejected claims 2-8, 16, 32, 55-61, 66, 67 and 90-100 and rejected claims 20, 21, 69 and 70 are not obvious over the prior art of record.

First, each claim rejected under 103(a) is a dependent claim from one of the independent claims rejected under 102(b), above. For at least all of the reasons presented above in relation to the 102(b) rejections, rejected dependent claims 2-8, 16, 32, 55-61, 66, 67 and 90-100 and rejected dependent claims 20, 21, 69 and 70 are allowable over the art of record.

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Further, none of the cited 103(a) references (e.g., Gurney '377, Gurney '617, Hasagawa and Smith) discloses or suggests a pressure sensing apparatus having a non-magnetic insulating layer between the ferromagnetic layers as required by Applicants' claimed invention. Additionally, none of the cited 103(a) references discloses or suggests the applied voltage in a direction orthogonal to the plane of the layers as required by Applicants' claimed invention. Also, none of the cited 103(a) references discloses or suggests sensing a change in resistance due to an applied pressure via the tunneling effect as required by Applicants' claimed invention.

Therefore, for at least these reasons, claims 2-8, 16, 32, 55-61, 66, 67 and 90-100 and claims 20, 21, 69 and 70 are not obvious over the cited 103(a) references and thus, are all allowable over the art of record.

Conclusion

In view of the foregoing and because all objections and rejections have been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

CHARGE STATEMENT: The Commissioner is hereby authorized to charge fees that may be required relative to this application, or credit any overpayment, to our Account 03-3975, Order No. 061450-0270200.

Respectfully submitted,
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